



The Words Students Need

Whole-school, context-rich vocabulary instruction is an intervention that boosts middle school students' reading comprehension.

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When students enter middle school, they encounter increasingly difficult textbooks and instructional materials. Many students begin to struggle with reading comprehension because they lack the vocabulary to understand academic text (Buly & Valencia, 2002; Snow, Porche, Tabors, & Harris, 2007). Not surprisingly, the National Institute of Child Health and Human Development (2000) advocates direct vocabulary instruction as an effective instructional method for enhancing students' reading comprehension.

In our work with schools to help them improve student literacy, we have observed that middle school teachers do not usually teach vocabulary. The vocabulary instruction that does exist is fragmented among content areas, and (perhaps as a result), middle school students often find textbooks and other academic materials unengaging. A system of cross-content, whole-school vocabulary instruction can result in better reading comprehension. Here is what the research says about the basic components of such a system.

Choose the Right Words

When a teaching team designs and implements a program of whole-school vocabulary instruction, its most important decision is which vocabulary words to teach. Beck, McKeown, and Kucan (2002) suggest teaching not the common words that all students are likely to know or the words that students

are only likely to encounter in texts for one content area, but rather general academic words. Unfortunately, the category of general academic words has rather fuzzy boundaries.

The Academic Word List (www.victoria.ac.nz/lals/resources/academicwordlist) is a set of words developed by Coxhead (2000), who analyzed a range of introductory college texts to identify words that appeared in multiple academic contexts across genres. Examples include *distribute*, *conclusion*, *proceed*, *logical*, *obtain*, *acquire*, *retain*, *exclude*, *attribute*, *assume*, *capacity*, *enable*, *perspective*, *relevant*, *perceive*, *component*, *restrict*, *generate*, *distinct*, *assess*, *alter*, *amend*, and *contrast*.

These words appear in their different forms in many content areas, often with varying meanings. The word *distribute*, for example, might occur in any text, from literature to history to math. In social studies, it might be used to refer to such concepts as *the distribution of power or income redistribution*. In math, students might learn about *frequency distributions* or *the distributive property of multiplication*. Coordinating vocabulary instruction across different content areas can help ensure that students understand the full range of uses of academic words.

Although the Academic Word List is a good source of cross-content words, it provides limited information about the frequency of words that students encounter in middle school reading because it was developed using a body of materials for adult readers. Frequency is a good predictor of word

difficulty, and the most frequent words are most important to student learning. Students appear to learn words in a relatively consistent sequence as they progress through the grades, and they generally learn high-frequency words first (Biemiller, 2003, 2005; Zeno, Ivens, Millard, & Duvvuri, 1995).

A number of word lists and tools can help teacher teams identify high-frequency words for instruction. For example, WordCount (www.wordcount.org/main.php), an online tool created by Jonathan Harris, presents the 86,800 most frequently used English words, ranked in order of frequency. There are also commercially available word lists created from words that students encounter in primary and secondary school texts (Zeno, Ivens, Millard, & Duvvuri, 1995), which are also available in searchable software versions through Questar Assessments (www.questarai.com).

Ensure Repeated, Rich Exposure

Probably the most consistent finding related to good vocabulary instruction is that students need multiple exposures to a word to learn it well (Lawrence, 2009; Nagy, Herman, & Anderson, 1985). Although some students may come to a basic understanding of a word after one exposure, all students need additional encounters in different contexts to ensure that they develop rich orthographic, phonological, and semantic knowledge of the word (Perfetti & Hart, 2002). McKeown, Beck, Omanson, and Pople (1985) found that students who had 12 instructional encounters with target words learned the words

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better than students who had only four.

To provide the multiple experiences students need, we suggest that teachers select just five to seven words to focus on each week, planning at the start of each week how to embed the word into writing or debate prompts, homework assignments, quizzes, and lessons. Cross-content teaching teams can work together, with teachers in each content area taking responsibility for providing instruction on the target words one day of the week.

Teachers are often tempted to begin and end vocabulary instruction with dictionary definitions. Student-friendly

definitions do support learning (Bolger, Balass, Landen, & Perfetti, 2008), but teachers may find such definitions difficult to develop. A good online tool is the Longman Dictionary of Contemporary English (www.ldoceonline.com), which presents clear definitions using only the 2,000 most common words in English.

Definitions alone, however, are not enough. If the purpose of vocabulary instruction is to improve long-term comprehension, the most effective method is to provide students with multiple exposures to words in meaningful contexts (Beck, Perfetti, & McKeown, 1982). Some contexts make the meaning of a target word more transparent than others. The sentence, *The boy was tardy* does not provide much of a clue to meaning for a student who does not already know what *tardy* means. The sentence, *The boy was 10 minutes tardy, so his teacher was upset with him* provides much better support to help the learner infer meaning. Because it can be difficult to immediately come up with interesting sentences that provide context for target word use, we suggest that teachers write them at the start of each week as part of lesson planning.

Encourage Use and Experimentation

Most secondary teachers have encountered students who overuse vague, general words

Online Resources for Vocabulary Instruction

To identify high-frequency cross-content words:

- The Academic Word List (www.victoria.ac.nz/lals/resources/academicwordlist)
- Word Count (www.wordcount.org/main.php)

To create student-friendly word definitions:

- Longman Dictionary of Contemporary English (www.ldoceonline.com)

To support students' morphological skills and word learning strategies:

- Visuword Online Graphical Dictionary (www.visuwords.com/search)
- WordSift (www.wordsift.com)

To obtain information about Word Generation, a whole-school, cross-content vocabulary program, and download free curriculum and materials:

- Word Generation (<http://wordgeneration.org>)

like *nice* and *stuff* in their academic discourse and writing. These students may be avoiding the use of richer academic vocabulary because they have only partially mastered more advanced words and are afraid of using them incorrectly.

To encourage students to expand their written vocabulary, teachers need to support student experimentation and reward use of even partially known words. In assessing student writing, teachers should include rubric categories for not only correct word usage, but also the range of academic language used. That way, teachers can give credit for attempts to use rich language even if the student's first attempts are only partially correct.

Teach Word Learning Strategies

In the example of the word *distribute*, we treated the words *redistribute* and *distributive* as synonymous with the target word even though they are actually morphological derivatives. For adult readers with a strong awareness of morphological relationships, the semantic connections between these words are clear. Adolescent students, however, may not understand such relationships.

Research suggests that students with better morphological awareness have better vocabulary knowledge and reading comprehension (Kieffer & Lesaux, 2008). Therefore, we advise teachers to use a range of words related to the target word and to explicitly discuss how prefixes (such as *re-*) change its meaning. These strategies can deepen students' knowledge of the target word and provide them with tools for analyzing and understanding other unfamiliar academic words. Teachers should also draw students' attention to different word forms

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whenever the class encounters them.

An online tool that will help teachers think about sets of related words is the Visuword Online Graphical Dictionary (www.visuwords.com/search). This site provides a visual representation of a range of meanings for any target word and illustrates up to 15 distinct relationships among words by connecting them with color-coded links.

The Word Generation Program

Beginning in 2006, we developed a whole-school, cross-content program based squarely on the research described here. Operating under the Strategic Education Research Partnership (www.serp.institute.org), the Word Generation program was implemented in five Boston middle schools. This program introduces students to selected academic vocabulary words in the context of a high-interest passage about a controversial topic (for example, *Should people be able to rent a pet? or Should parents be allowed to keep some adoption information private?*). Each Monday, students read the passage in English class. On Tuesday, Wednesday,

and Thursday, they encounter the words and the topic again in content-specific activities in math, science, and social studies. (In social studies, for instance, students debate the topic in class.) On Friday, students write persuasive essays defending their position on the topic. Thus, Word Generation's focus on vocabulary also supports reading accuracy, fluency, syntax issues, background knowledge, and comprehension.

In 2007, we began a quasi-experiment to compare students attending five middle schools that self-selected themselves to adopt the Word Generation program with students attending

three middle schools that the district recruited to serve as comparison schools. The majority of students in both the Word Generation schools and the comparison schools were from low-income homes.

We administered a multiple-choice test of 40 of the 120 Word Generation words as both a pre-test and a post-test to students in grades 6, 7, and 8. An analysis of one year's results (Snow, Lawrence, & White, 2009) found that students in Word Generation schools started the study with lower vocabulary and reading achievement than those in comparison schools.

The post-test results showed that students in the Word Generation program learned approximately the same number of words that differentiated the scores of 6th and 8th graders on the pre-test—in other words, participation in 20–22 weeks of the program was equivalent to two years of learning during business as usual. Students who participated in the Word Generation program learned more words than students in the comparison schools, and English language learners who participated in

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the program benefited even more from program participation than did students who spoke English at home.

We also conducted analyses to determine whether students who participated in the program improved in their reading ability, as measured by the Massachusetts Comprehensive Assessment System (MCAS). Word Generation students who improved their vocabulary scores also tended to improve their MCAS scores. We are not suggesting, however, that merely learning additional academic words was sufficient to improve student performance on a state-mandated achievement measure. Rather, we believe that the program's regular debate, persuasive writing, and critical-thinking activities improved both students' academic word knowledge and their broader literacy skills.

In a follow-up longitudinal study, we administered assessments in the fall and spring of the following year to determine how well students maintained and consolidated their knowledge of target academic words. In both follow-up assessments, students who participated in the program maintained their relative improvements (Lawrence, Capotosto, Branum-Martin, White, & Snow, 2010).

Expanded Vocabulary, Improved Reading

Although a randomized trial of the Word Generation program is still underway, the results from the quasi-experiment described here suggest that combining the research-based components of vocabulary instruction in a schoolwide program can improve student word learning in urban middle schools. In addition, these approaches

to word learning appear to improve reading comprehension (as measured by improved word knowledge). Vocabulary gains for participating students are still apparent even a year after the instruction has ended.

Our experience with Word Generation provides evidence that cross-content vocabulary instruction can provide rich word-learning opportunities, which translate into improved reading achievement. **EL**

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